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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/480,986 | 01/10/2000 | MICHAEL BOLOTSKI | 18035-001010 | 5021 |

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EXAMINER

PIZIALI, JEFFREY J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2629

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/480,986

Applicant(s)

BOLOTSKI ET AL.

Examiner

Jeff Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) 6,8,14,16 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7,9,10,12,13,15 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed (on 26 June 2006) in this application after final rejection (mailed 29 December 2005). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's '*Amendment with Submission of Request for Continued Examination [RCE] Under 37 CFR 1.114*' filed on 26 June 2006 has been entered.

Drawings

2. The drawings were received on 23 December 2003 (Paper No. 20). These drawings are acceptable.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 2, 5, 7, 9, 10, 12, 13, 15, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKnight (US 6,144,353) in view of Bonnett et al. (US 6,075,506).

Regarding claim 1, McKnight discloses a method for operating a display [Fig. 1A & 1B; 12] having a plurality of pixel elements [Fig. 2A; 106], comprises: applying a single transition voltage [Fig. 2C, 151] to the plurality of pixel elements on the display during a first period of time [Fig. 2C, t_0 - t_1] within a first field time (see Column 11, Lines 49-52), wherein the single transition voltage modifies a voltage between the plurality of pixel elements and ground (see Fig. 2B; Column 9, Lines 44-67 and Column 10, Lines 8-12) and induces liquid crystal material [Fig. 2A, "Liquid Crystal"] in each pixel element to begin a transition from a bright state [Fig. 2C, high intensity] to a dark state [Fig. 2C, low intensity]; thereafter while the liquid crystal material for each pixel element is performing the transition to the dark state [Fig. 3A; 204] in response to the application of the single transition voltage, initiating application of a first paint voltage [Fig. 3A; 206] to one pixel element of the plurality of pixel elements during a second period of time [Fig. 2C, t_1 - t_2] within the first field time, wherein the single transition voltage is supplied to the one pixel element prior to initiating application of the first paint voltage, and wherein initiating application of the first paint voltage, after the one pixel element is performing the transition to

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the dark state, overwrites the single transition voltage and induces liquid crystal material in the one pixel element to begin transitioning to a state associated with the first paint voltage [Fig. 2C, 154] (see Column 10, Lines 1-40); thereafter waiting a predetermined time period within the first field time; and thereafter illuminating the pixel [Fig. 3A, 210] within the first field time (see Column 11, Line 26 - Column 12, Line 47).

In this embodiment, McKnight teaches momentarily driving the display pixel elements dark [Fig. 2C, t_0-t_1], prior to applying the paint voltage (i.e. pixel data). However, other embodiments of McKnight disclose driving the display pixel elements bright, prior to applying the paint voltage (see Figs. 7A-7C; Column 15, Line 23 - Column 16, Line 60). Additionally, Bonnett discloses a single transition voltage [Fig. 2a; strobe signal S] inducing liquid crystal material (see Column 3, Lines 50-56) in each pixel element to begin a transition from a dark/black state to a bright/white state prior to initiating application of the first paint voltage (i.e. data signal) (see Column 4, Lines 19-30). McKnight and Bonnett are analogous art, because they are from the shared field of driving liquid crystal display devices. Therefore, it would have been obvious to one skilled in the art at the time of invention to use Bonnett's white state blanking technique with McKnight's pixel data driving method, so as to increase the grey scale capability of the display.

Regarding claims 2, 10 and 18, McKnight discloses illuminating the pixel with an illumination source [Fig. 2A, 114] of a first color within the first field time (see Column 9, Lines 24-28).

Regarding claim 5, McKnight discloses illuminating the pixel with an illumination source [Fig. 2A, 114] (see Column 9, Lines 16-43).

Regarding claims 7 and 15, McKnight discloses applying the first transition voltage to a first row of pixels while holding a common electrode [Fig. 2A, 108] at a constant value [Fig. 2C, 151 between t_1 and t_2] (see Column 10, Lines 1-50), and thereafter applying the single/first transition voltage to a second row of pixels while holding a common electrode at a constant value [Fig. 2C, 151 between t_5 and t_6] (see Column 11, Line 33 - Column 12, Line 12).

Regarding claim 9, this claim is rejected under the reasoning applied in the above rejection of claim 1, furthermore, McKnight discloses a transaction circuit [Fig. 2A, 110] coupled to each pixel; a paint circuit [Fig. 2A, 102] coupled to the transaction circuit; a timer circuit [Fig. 2A, 112] coupled to the paint circuit; and an illumination circuit coupled to the timer circuit [Fig. 2A, 114 & 116] (see Column 9, Lines 16-43).

Regarding claims 12 and 19, McKnight discloses red, green and blue colors (see Column 9, Lines 24-28).

Regarding claim 13, McKnight discloses the illumination circuit comprises a monochromatic illumination source (see Column 9, Lines 24-25).

Regarding claim 17, this claim is rejected under the reasoning applied in the above rejection of claim 1, furthermore, McKnight discloses an initialization circuit [Fig. 2A, 110] coupled to the pixels; a driving circuit [Fig. 2A, 102] coupled to the initialization circuit; and an illumination circuit [Fig. 2A, 114 & 116] coupled to the driving circuit (see Column 9, Lines 16-43).

Response to Arguments

6. Applicants' arguments filed 26 June 2006 have been fully considered but they are not persuasive. The applicants contend the cited prior art of McKnight (US 6,144,353) neglects teaching, "the single transition voltage modif[ying] a voltage between the plurality of pixel elements and ground" (see Page 8, Paragraph 2 of the '*Amendment with Submission of Request for Continued Examination [RCE] Under 37 CFR 1.114*' filed on 26 June 2006), as recited in each independent claim. However, the examiner must respectfully disagree.

The applicants admit, "In order to drive the display dark, McKnight modifies the voltage between the cover glass electrode and ground. (McKnight at col. 10, lines 8-14). Control of the voltage between the cover glass electrode and ground is used to darken the display, 'even if pixel data is still stored on the pixel electrodes.' (McKnight, FIG. 3A, reference number 204). Only after modifying the voltage between the cover glass electrode and ground does McKnight modify the voltage between the pixel electrode and ground in order to load pixel display data onto the pixel electrodes. (McKnight at col. 10, lines 14-19)." (see Page 8, Paragraph 1 of the '*Amendment with Submission of Request for Continued Examination [RCE] Under 37 CFR 1.114*' filed on 26 June 2006).

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However, McKnight clearly teaches that any voltages applied to either the cover glass electrode [Fig. 2A; 108] or the pixel electrodes [Fig. 2A; 104] will also resultingly be applied across the liquid crystal layer [Fig. 2A; 106] itself (e.g., see Fig. 2B; Column 9, Lines 44-67; Column 10, Lines 8-12 and Lines 54-68). Taking McKnight's liquid crystal layer [Fig. 2A; 106] between each respective pixel electrode [Fig. 2A; 104] and cover glass electrode [Fig. 2A; 108] to constitute the "pixel elements" would fully read upon the instant invention as presently claimed.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

Conclusion

The applicants are hereby notified that the examiner's art unit has recently changed from Art Unit 2673 to Art Unit 2629, please direct all future correspondence accordingly. Thank you.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Jeff Piziali", with a stylized flourish at the end.

Jeff Piziali
1 September 2006